

IN THE CLAIMS

Please cancel claims 3, 5, 6, 15, 21, 24, 26, 27, 35-41, 44, 46, 47 and 55-61 and amend Claims 1, 2, 7-14, 22, 23, 28-34, 42, 43 and 48-54 as shown in the Attached Appendix. The claims, as pending in the subject application read as follows.

Sub
C-1

1. (Amended) ~~A coordinates correction apparatus comprising:~~
a coordinate input means being placed on a display;
a display control means for controlling the display of a plurality of reference points on the display;
a coordinates reception means for receiving coordinates designated for the plurality of displayed reference points by user via said coordinate input means;
a parameter calculation means for calculating coordinates correction parameters for nonlinear conversion, based on the received coordinates;
a parameter keeping means for keeping the calculated coordinates correction parameters for nonlinear conversion; and
a coordinates correction means for correcting the coordinates inputted via said coordinates input means by the nonlinear conversion using the coordinates correction parameters kept by the parameter keeping means.

2. (Amended) The coordinates correction apparatus of Claim 1, wherein the coordinates correction parameters are a, b, c, d, e, f, g, and h and wherein the

B1
cont

B1
canceled

nonlinear conversion for correcting the coordinates (x, y) inputted via the coordinates input means to corrected coordinates (X, Y) is expressed by:

$$X = axy + bx + cy + d$$

$$Y = exy + fx + gy + h.$$

3. (Cancelled)

4. (Not Changed From Prior Version) The coordinates correction apparatus of Claim 1, further comprising a coordinates output means for outputting the coordinates corrected by the coordinates correction means.

5. (Cancelled)

6. (Cancelled)

B2
cont

~~7. (Amended) The coordinates correction apparatus of Claim 1,~~
wherein the parameter calculation means discriminates that the received coordinates is which of the plurality reference points, and calculates the coordinates correction parameters for the nonlinear conversion based on the discriminated coordinates.

8. (Amended) The coordinates correction apparatus of Claim 1,
wherein the parameter calculation means calculates the coordinates correction parameters by

solving simultaneous equations based on the received coordinates corresponding to the plurality of displayed reference points.

9. (Amended) The coordinates correction apparatus of Claim 1, wherein said display is a liquid crystal display.

10. (Amended) The coordinates correction apparatus of Claim 1, wherein the plurality of displayed reference points is four reference points expressed in pairs of two x coordinates and two y coordinates in an xy rectangular coordinates system.

11. (Amended) The coordinates correction apparatus of Claim 10, wherein the parameter calculation means calculates the coordinates correction parameters a, b, c, d, e, f, g, and h by solving the following formulas where the coordinates of the four reference points as (X_0, Y_0) , (X_1, Y_0) , (X_0, Y_1) , and (X_1, Y_1) , setting the received coordinates [of the pointed locations with aiming at points] as (x_{nw}, y_{nw}) , (x_{ne}, y_{ne}) , (x_{sw}, y_{sw}) , and (x_{se}, y_{se}) ;

$$X_0 = ax_{nw}y_{nw} + bx_{nw} + cy_{nw} + d$$

$$Y_0 = ex_{nw}y_{nw} + fx_{nw} + gy_{nw} + h$$

$$X_1 = ax_{ne}y_{ne} + bx_{ne} + cy_{ne} + d$$

$$Y_0 = ex_{ne}y_{ne} + fx_{ne} + gy_{ne} + h$$

$$X_0 = ax_{sw}y_{sw} + bx_{sw} + cy_{sw} + d$$

$$Y_1 = ex_{sw}y_{sw} + fx_{sw} + gy_{sw} + h$$

$$X_1 = ax_{se}y_{se} + bx_{se} + cy_{se} + d$$

$$Y_1 = ex_{se}y_{se} + fx_{se} + gy_{se} + h_1$$

wherein the parameter keeping means keeps the calculated coordinates correction parameters a, b, c, d, e, f, g, and h, and

wherein the coordinates correction means corrects the coordinates inputted via said coordinate input means (x, y) to corrected coordinates (X, Y) by the nonlinear conversion

$$X = axy + bx + cy + d$$

$$Y = exy + fx + gy + h.$$

B2
could

12. (Amended) The coordinates correction apparatus of Claim 1, further comprising a deciding means for deciding that the calculation of the coordinate correction parameters by said display control means, said coordinates reception means and said parameter calculation means is executed if said parameter keeping means does not keep the coordinates correction parameters.

13. (Amended) The coordinates correction apparatus of Claims 1, wherein the coordinates correction apparatus is a portable information processing apparatus.

14. (Amended) The coordinates correction apparatus of Claims 1, wherein the coordinates correction apparatus can be connected to a network.

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

sub
c2
22. ~~(Amended) A coordinates correction method for controlling a~~
coordinates correction apparatus which has a coordinate input means placed on a display, the
method comprising:

B3
cont
controlling the display of a plurality of reference points on the display;
receiving coordinates designated for the plurality of displayed reference
points by user via said coordinate input means;
calculating coordinates correction parameters for nonlinear conversion,
based on the received coordinates;
keeping the calculated coordinates correction parameters for nonlinear
conversion; and

correcting the coordinates inputted in the coordinate input step by the nonlinear conversion using the kept coordinates correction parameters.

B3
cmcd

23. (Amended) The coordinates correction method of Claim 22, wherein the coordinates correction parameters [in said parameter keeping step] are a, b, c, d, e, f, g, and h, and wherein the nonlinear conversion for correcting the coordinates (x, y) inputted via the coordinates input step to the corrected coordinates (X, Y) in said coordinates correction step is represented by

$$X = axy + bx + cy + d$$

$$Y = exy + f x + gy + h.$$

24. (Cancelled)

25. (Not Changed From Prior Version) The coordinates correction method of Claim 22, further comprising a coordinates output step of outputting the coordinates corrected in the coordinates correction step.

26. (Cancelled)

27. (Cancelled)

28. (Amended) The coordinates correction method of Claim 22, wherein the parameter calculation step discriminates that the received coordinates is which of the plurality reference points, and calculates the coordinates correction parameters for the nonlinear conversion based on the discriminated coordinates.

29. (Amended) The coordinates correction method of Claim 22, wherein the coordinates correction parameters are calculated in the parameter calculation step by solving simultaneous equations based on the received coordinates corresponding to the plurality of displayed reference points.

30. (Amended) The coordinates correction method of Claim 22, wherein said display is liquid crystal display.

31. (Amended) The coordinates correction method of Claim 22, wherein the plurality of displayed reference points is four reference points expressed in pairs of two x coordinates and two y coordinates in an xy rectangular coordinates system.

32. (Amended) The coordinates correction method of Claim 31, wherein coordinates correction parameters, a, b, c, d, e, f, g, and h, are calculated in the parameter calculation step by solving the following formulas where the coordinates of the four reference points as (X_0, Y_0) , (X_1, Y_0) , (X_0, Y_1) , and (X_1, Y_1) , setting the received coordinates as (x_{nw}, y_{nw}) , (x_{ne}, y_{ne}) , (x_{sw}, y_{sw}) , and (x_{se}, y_{se}) :

$$X_0 = ax_{nw}y_{nw} + bx_{nw} + cy_{nw} + d$$

$$Y_0 = ex_{nw}y_{nw} + fx_{nw} + gy_{nw} + h$$

$$X_1 = ax_{ne}y_{ne} + bx_{ne} + cy_{ne} + d$$

$$Y_0 = ex_{ne}y_{ne} + fx_{ne} + gy_{ne} + h$$

$$X_0 = ax_{sw}y_{sw} + bx_{sw} + cy_{sw} + d$$

$$Y_1 = ex_{sw}y_{sw} + fx_{sw} + gy_{sw} + h$$

$$X_1 = ax_{se}y_{se} + bx_{se} + cy_{se} + d$$

$$Y_1 = ex_{se}y_{se} + fx_{se} + gy_{se} + h,$$

wherein the calculated coordinates correction parameters are kept in the parameter keeping step, and

wherein the coordinates inputted via said coordinate input step (x, y) are corrected to corrected coordinates (X, Y) in the coordinates correction steps by the nonlinear conversion

$$X = axy + bx + cy + d$$

$$Y = exy + fx + gy + h.$$

33. (Amended) The coordinates correction method of Claim 22, further comprising a deciding step of deciding that the calculation of the coordinate correction parameters by said display controlling step, said coordinates receiving step, and said parameter calculation step is executed if said keeping step does not keep the coordinates correction parameters.

B4
cancel

34. (Amended) The coordinates correction method of Claims 22 which is a coordinates correction method for controlling a portable information processing apparatus.

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

Sub
C3
B5
Cont

42. (Amended) A computer-readable memory medium for storing a coordinates correction control program for controlling a coordinates correction apparatus which has a coordinate input means placed on a display, the program comprising:

~~code to control the display of a plurality of reference points on the display;~~

~~code to receive coordinates designated for the plurality of displayed~~
reference points by user via said coordinate input means;

code to calculate coordinates correction parameters for nonlinear
conversion, based on the received coordinates;

code to keep the calculated coordinates correction parameters for nonlinear
conversion; and

code to correct the coordinates inputted in the coordinate input step by the
nonlinear conversion using the kept coordinates correction parameters.

B5
could

43. (Amended) The computer readable memory medium of Claim 42,
wherein the coordinates correction parameters are a, b, c, d, e, f, g, and h, and wherein the
nonlinear conversion for correcting the coordinates (x, y) inputted via the coordinates input
step to the corrected coordinates (X, Y) in said coordinates correction step is represented by

$$X = axy + bx + cy + d$$

$$Y = exy + fx + gy + h.$$

44. (Cancelled)

45. (Not Changed From Prior Version) The computer readable memory
medium for storing a coordinates correction control program of Claim 42, further comprising
a coordinates output step of outputting coordinates corrected in the coordinates correction
step.

46. (Cancelled)

47. (Cancelled)

48. (Amended) The computer readable memory medium for storing a coordinates correction control program of Claim 42, wherein the parameter calculation step discriminates that the received coordinates is which of the plurality reference points, and calculates the coordinates correction parameters for the nonlinear conversion based on the discriminated coordinates.

B6
cont

49. (Amended) The memory medium that can be read by a computer storing a coordinates correction control program of Claim 42, wherein the coordinates correction parameters are calculated in the parameter calculation step by solving simultaneous equations based on the received coordinates corresponding to the plurality of displayed reference points.

50. (Amended) The memory medium that can be read by a computer storing a coordinates correction control program of Claim 42, wherein said display is liquid crystal display.

51. (Amended) The memory medium that can be read by a computer storing a coordinates correction control program of Claim 42, wherein the plurality of

displayed reference points is four reference points expressed in pairs of two x coordinates and two y coordinates in an xy rectangular coordinates system.

52. (Amended) The memory medium that can be read by a computer storing a coordinates correction control program of Claim 51, wherein coordinates correction parameters, a, b, c, d, e, f, g, and h, are calculated in the parameter calculation step by solving the following formulas where the coordinates of the four reference points as (X_0, Y_0) , (X_1, Y_0) , (X_0, Y_1) , and (X_1, Y_1) , setting the received coordinates as (x_{nw}, y_{nw}) , (x_{ne}, y_{ne}) , (x_{sw}, y_{sw}) , and (x_{se}, y_{se}) :

$$X_0 = ax_{nw}y_{nw} + bx_{nw} + cy_{nw} + d$$

$$Y_0 = ex_{nw}y_{nw} + fx_{nw} + gy_{nw} + h$$

$$X_1 = ax_{ne}y_{ne} + bx_{ne} + cy_{ne} + d$$

$$Y_0 = ex_{ne}y_{ne} + fx_{ne} + gy_{ne} + h$$

$$X_0 = ax_{sw}y_{sw} + bx_{sw} + cy_{sw} + d$$

$$Y_1 = ex_{sw}y_{sw} + fx_{sw} + gy_{sw} + h$$

$$X_1 = ax_{se}y_{se} + bx_{se} + cy_{se} + d$$

$$Y_1 = ex_{se}y_{se} + fx_{se} + gy_{se} + h,$$

wherein the calculated coordinates correction parameters are kept in the parameter keeping step, and

wherein the coordinates inputted via said coordinate input step (x, y) are corrected to corrected coordinates (X, Y) in the coordinates correction steps by the nonlinear conversion

$$X = axy + bx + cy + d$$

$$Y = exy + fx + gy + h.$$

53. (Amended) The computer readable memory medium for storing a coordinates correction control program of Claim 42, further comprising a deciding step of deciding that the calculation of the coordinate correction parameters by said display controlling step, said coordinates receiving step, and said parameter calculation step is executed if said keeping step does not keep the coordinates correction parameters.

54. (Amended) The computer readable memory medium for storing a coordinates correction control program of Claims 42, which is a coordinates correction program for controlling a portable information processing apparatus.

55. (Cancelled)

56. (Cancelled)

57. (Cancelled)

58. (Cancelled)

59. (Cancelled)